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BOTANICAL EXPLORATION OF THE MACKENZIE MOUNTAINS

BOTANICALLY unexplored mountain ranges are no longer common in North America. A host of expeditions and local collectors, from the days of Kalm, Michaux, Douglas and Nuttall to recent times, have seen to that. The Mackenzie Mountains of northwestern Canada have remained a challenge, not only to botanists but to geographers and geologists as well, during the long period of more active exploration around them. They are remote both by distance and accessibility, hidden away in the vast wilderness of Yukon and western Mackenzie, and drained only by broken, unnavigable streams. A few hardy trappers and prospectors, and a few Indians who are among the least civilized on the continent, are the only inhabitants. But the development of air transport in recent years has altered all our prospects for biological exploration. Even the most inaccessible regions now become available for study by naturalists in various fields.

The Arnold Arboretum as part of its general program of field work sponsored a collecting expedition to the Mackenzie Mountains during the past summer. The main objectives were to make collections representing the flora of a part of this unknown region, and a study of the local types of vegetation. The net results will be a contribution to the broader problems of boreal phytogeography, for the summer's work will throw light on one of the largest blank spots in our plant maps of the northern part of the continent. The field work was in charge of the writer, who, with his wife, had been engaged in the botanical investigation of the Mackenzie basin for several years; and was financed in part by grants from the Milton Fund of Harvard University, the American Academy of Arts and Sciences, and the National Academy of Science. The National Museum of Canada made generous loans of field equipment. Mr. James H. Soper, of Hamilton, Ontario, served as field assistant. Since it was especially desirable to reach the mountains for spring collecting (mid-June), and since the Mackenzie system at Great Slave Lake is not commonly open to navigation so early in the season, plans for the whole trip had to be made a year ahead of time.

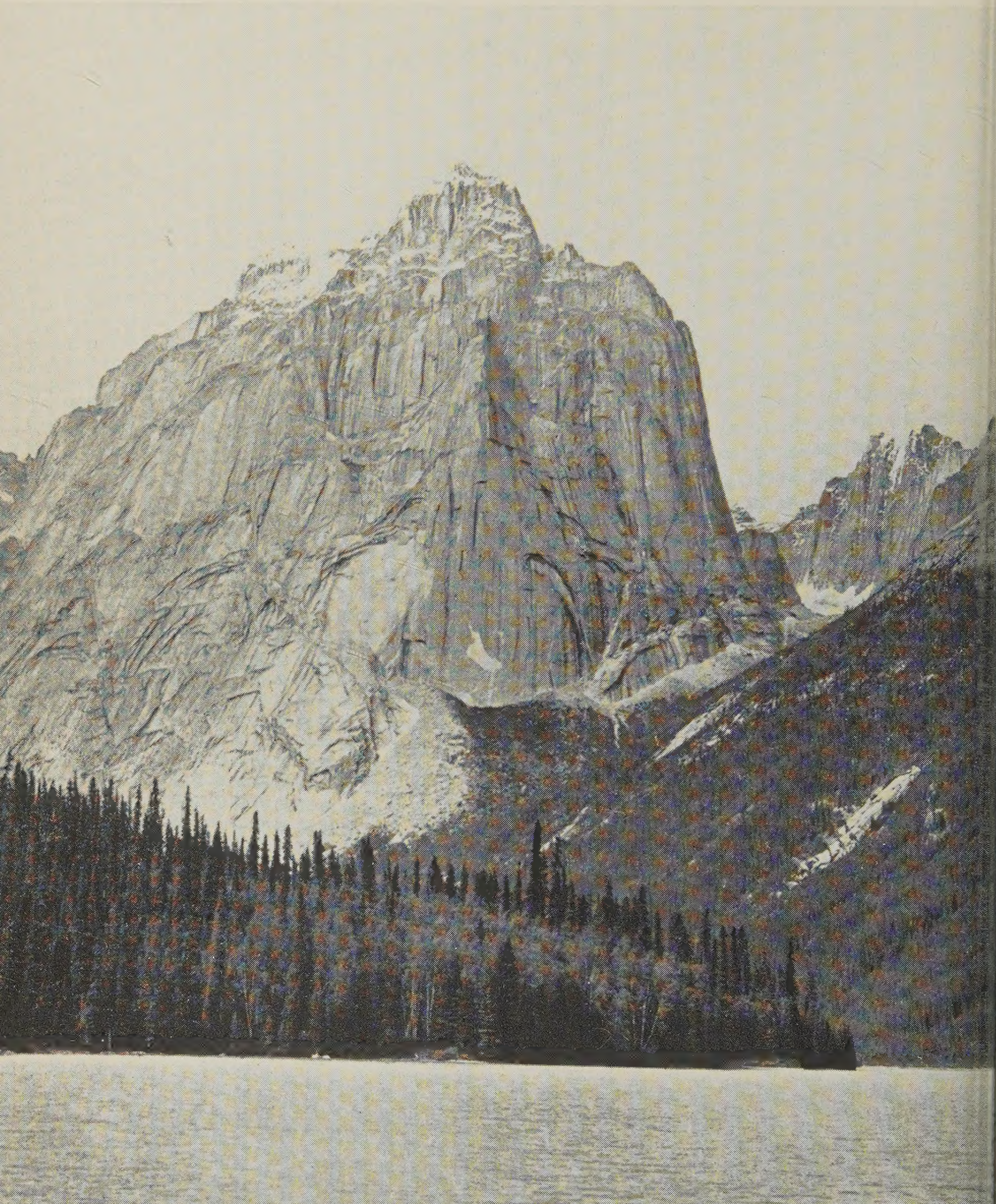
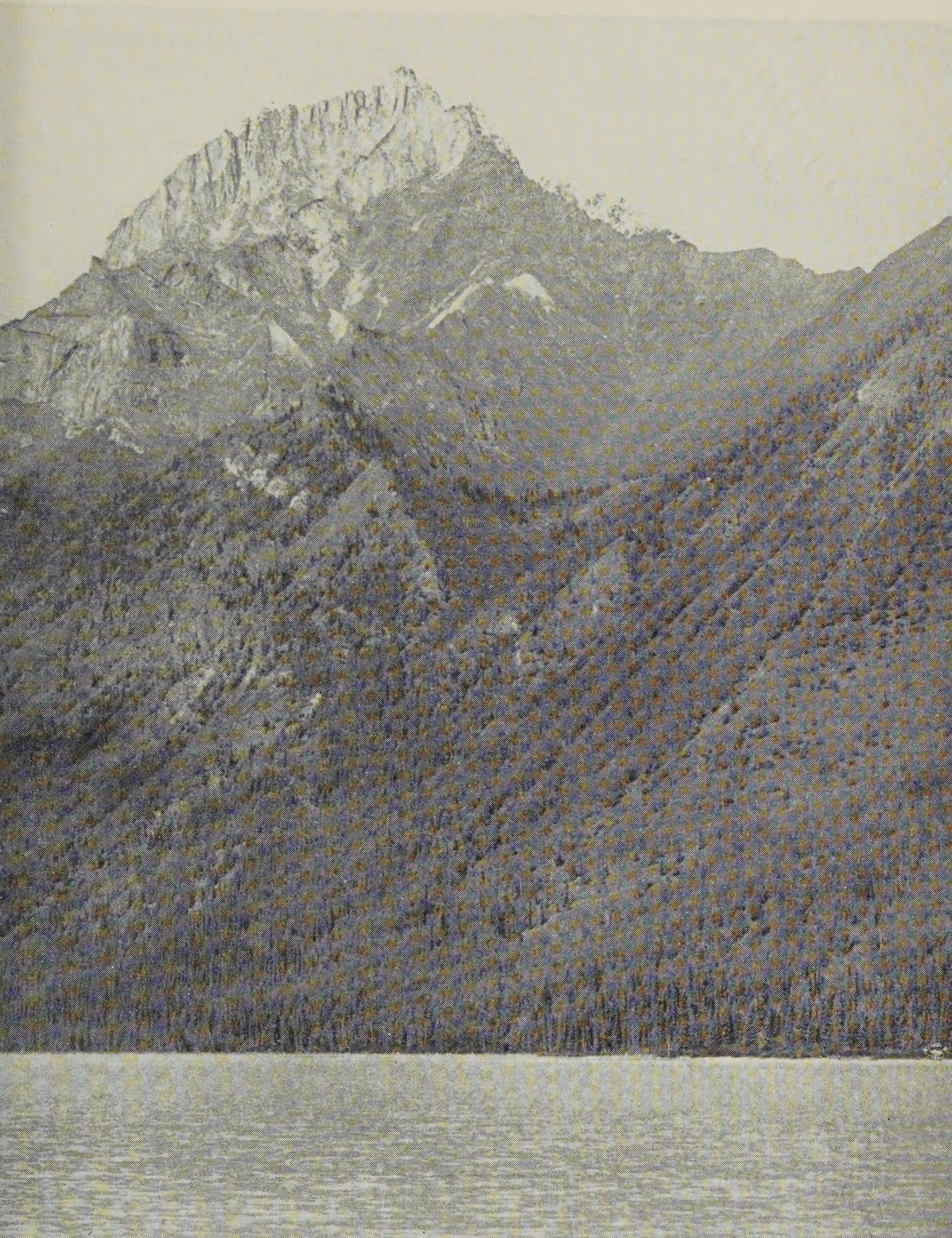


PLATE XI

Granite and shale mountains around the western end of Brintnell Lake. Th
expedition's camp is on the shore near the right hand margin of the pictur



ber line is from 1200 to 1400 feet above the level of the lake, and the effects
now-slides may be seen in the spruce and birch forests on the steep slopes.

Most of the food supplies, collecting outfit, and heavier camping equipment were packed and shipped to the Hudson's Bay Company at Fort Simpson in the summer 1938. The party left Boston May 20, 1939, and reached Simpson on June 8th, using a Mackenzie Air Service plane for the last and ordinarily most time-consuming stage of the journey—north from Fort Smith. A week at Simpson gave time to sort and repack supplies, and to collect the local spring flora along the Mackenzie River.

On the 16th a chartered plane carried us to Brintnell Lake, a small body of water at an altitude of 2600 feet in the Snyder Range, approximately 200 miles west of Fort Simpson. This range lies in the heart of the Mackenzie Mountain system, and is composed of rugged granite and shale mountains, some of which reach elevations 9000 feet or more above the sea.

It would be difficult to conceive of a more completely primeval country than this. Two years ago a surveying party sponsored by Mr. Harry Snyder of Montreal (for whom the mountains were named) camped there for a few weeks; and trappers spent a winter on the lake a few years ago. Aside from these few visitors the lake and its surrounding mountains seem never to have been inhabited by human beings. No evidence of Indian occupation could be found. Overland travel proved extremely difficult due to the steep slopes and the complete absence of man-made trails.

The flora is a small one in number of species, and strongly Arctic in character. Never-the-less a remarkably rich forest of spruce grows on the lower slopes of the mountains. The timber line is from 1200 to 1400 feet above the lake, with colorful alpine meadow and crevice vegetation above. The steeper slopes everywhere are made difficult for plant growth by the prevalence of hazardous slide-rock; and on the steep southward-facing surfaces the vegetation is subject to great damage by periodic spring snow-slides. Collecting and field studies of local distribution problems engaged our attention until another plane came for us on the 20th of August. A sectional canoe made possible short trips about the lake, but otherwise we went on foot to the surrounding country. No two mountain slopes had the same flora, so that the collecting did not become monotonous in spite of our confinement to one region.

After a stay of three weeks in Fort Simpson we travelled southward up the Mackenzie, Slave and Athabaska Rivers by slow stages, and finally reached home on the 28th of September. The summer's collecting netted some 15,000 herbarium specimens, over two thirds of which are of flowering plants and ferns, and the remainder lichens, mosses and fungi. Most of the material came from Brintnell Lake and Simpson, although some very interesting plants, especially willows, were gathered along the rivers as we travelled northward in the spring. The collections will be studied at the Arboretum and the duplicates distributed from it in exchange with herbaria throughout the world.

Hugh M. Raup

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